

What is claimed is:

[Claim 1] 1. A method of operating a silicon-on-insulator device, wherein the silicon-on-insulator device includes a transistor and a control transistor such that the transistor and the control transistor share a common source region and the drain region of the control transistor is electrically connected to the main body of the transistor, the operating method comprising the following steps:

switching the transistor on by:

applying a bias voltage V_{cc} to the drain terminal of the transistor and applying a bias voltage V_{cc} to the gate terminal of the transistor so that the source terminal and the gate terminal of the transistor are at 0V, thereby terminating any electrical connection between the main body of the transistor with the source terminal of the transistor so that the transistor has a characteristic of floating-body silicon-on-insulator device; and

switching the transistor off by:

applying a bias voltage V_{cc} to the drain terminal of the transistor so that the gate terminal and the source terminal of the transistor are at 0V and applying a bias voltage V_{cc} to the gate terminal of the control transistor, thereby forming an electrical connection between the main body of the transistor and the source terminal of the transistor so that the transistor has a characteristic of non-floating body silicon-on-insulator device.